



A.D. 1842 N° 9430.

S P E C I F I C A T I O N

OF

JULES LEJEUNE.

—
FURNACES, &c.
—

L O N D O N :

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LEJEUNE'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JULES LEJEUNE, of North Place, Regent's Park, in the County of Middlesex, Engineer, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her
5 Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Twenty-ninth day of July, in the sixth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Jules Lejeune, Her especial licence, full power, sole privilege and authority, that I, the said Jules Lejeune, my exors, admors, and assigns, or such others as
10 I, the said Jules Lejeune, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, my Invention of "IMPROVEMENTS IN ACCELERATING COMBUSTION, WHICH IMPROVEMENTS
15 MAY BE APPLIED IN PLACE OF THE BLOWING MACHINES NOW IN USE;" in which said Letters Patent is contained a proviso, that I, the said Jules Lejeune, shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be enrolled in Her Majesty's High Court of Chancery within six calendar months next and immediately
20 after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

Lejeune's Improvements in Accelerating Combustion, &c.

NOW KNOW YE, that in compliance with the said proviso, I, the said Jules Lejeune, do hereby declare that the nature of my Invention, and the manner in which the same is to be performed, are fully described and ascertained in and by the following statement thereof, that is to say:—

My Invention relates, first, to a mode of accelerating combustion when 5 anthracite coal is used in the manufacture of iron, or for obtaining heat in other furnaces or fire-places, by employing steam as a means of obtaining the requisite blast of air to the furnace, by which means I am enabled not only to accelerate combustion, but to dispense with the use of the ordinary blowing apparatus; and, secondly, my Invention relates to a mode of accelerating 10 combustion, by causing the requisite supply or blast of air to be obtained to furnaces or other apparatus requiring a supply of air by a peculiar application of a blast of atmospheric air.

And in order that the Invention may be fully understood and readily be carried into effect, I will proceed to explain the means pursued by me. 15

I cause a jet of steam, of a pressure according to the pressure of blast required, to rush through a suitable tube, placed into the twyer holes of a furnace or fire-place; in fire-places the ash-pit is shut up, and the same passes through a hole in the ash-pit down into a larger pipe before it makes its escape into the ash-pit, wherein anthracite coal is burned, whether the same be 20 for the manufacture of iron or for other purposes; and in order that the steam should cause as much air as possible to be carried through each of the twyer holes, I cause those holes to be made cylindrical, and of a dimension in the proportion of two of the small to five of the large pipe used. At the same time I would remark, that, although I prefer that such should be the relation 25 between the tube and the twyer hole into a furnace, I do not confine myself thereto; and although the twyer hole should be cylindrical, the slightly coning it would not materially injure the effect, but I believe every departure from the cylindrical form will be found to reduce the supply of air in respect to the quantity of them used to pass through the steam jet pipe. By these means it 30 will be found that the effect will be that anthracite coal may be consumed with facility.

I would remark that I make no claim to the use of steam as a means of obtaining a blast in blast or other furnaces, when other fuel is separate from anthracite coal; but but what I claim as the first part of my Invention is, the 35 mode of accelerating combustion of anthracite coal in furnaces, by combining therewith a blast of air caused by steam, as bove described.

I will now describe the second part of my Invention, which consists in

Lejeune's Improvements in Accelerating Combustion, &c.

accelerating combustion and obtaining a blast of air for other purposes, by causing a blast of air to be forced through a tube or tubular opening into a furnace, such blast of air being conducted into the tube or tubular opening by a suitable pipe of smaller diameter than the tube into which it conducts a blast
5 of air, leaving a space all around for the passage of air from the outer atmosphere, such tube or tubular opening through which the blast is caused to take place having parallel sides, or being cylindrical or so nearly parallel in its sides as not to be more than an angle of

In carrying out this part of my Invention, I prefer that the tube or tubular
10 opening through which the blast is to be caused to take place according to my Invention should be of as two to five in respect to the tube which enters into it, in order to conduct a blast of air from a suitable blowing apparatus. Thus, supposing it desired to apply this part of my Invention to a blast furnace of the smelting of iron ore, in such case, in place of having the twyer hole
15 conical I cause it to be made cylindrical or otherwise with parallel sides, or so nearly parallel as not to depart therefrom more than to an angle of fifteen degrees, and into this tube I introduce the nozel of the air pipe from the blowing apparatus, the effect of which will be that, in addition to the blast of air from the blowing machinery, there will be a rush of air through the tubular
20 twyer hole, which will greatly increase the ordinary blast; and this will be caused by having the tube or tubular opening into the furnace with parallel sides, or so nearly parallel as not to depart therefrom more than fifteen degrees; and in this manner may the volume of air carried through a tube or tubular opening into any other furnace or other apparatus or process
25 requiring it be increased, and the cost of obtaining the required blast greatly reduced, and all that portion of air which is caused to pass through the tube or tubular opening by the rush of air from the blowing apparatus will be in place of having ordinary blowing machines of so powerful a nature as heretofore required when an equal volume of air is required. I would remark that
30 I am aware that currents of air from blowing machines have hitherto increased in a slight degree by leaving the twyer hole open round the air pipe, and into other apparatus which are open to the atmosphere; but in such instances the tube or tubular opening used was so coned as to be very far from having parallel sides; the consequence of which was, that the beneficial effect result-
35 ing from having the sides of the tube or tubular opening parallel, or so nearly parallel as not to depart more than fifteen degrees therefrom, could not be obtained.

I would, therefore, have it understood that what I claim as the second part

Lejeune's Improvements in Accelerating Combustion, &c.

of my Invention is, the mode of obtaining an increase of volume of air, by causing a blast of air to be passed through a tube or tubular opening into a furnace or other apparatus, the sides of which are parallel, or so nearly parallel as not to depart therefrom more than fifteen degrees.

In witness whereof, I, the said Jules Lejeune, have hereunto set my hand 5
and seal, this Twenty-eight day of January, in the year of our Lord
One thousand eight hundred and forty-three.

J. LEJEUNE. (L.S.) J. LEJEUNE.

SENIOR.

AND BE IT REMEMBERED, that on the Twenty-eighth day of January, in the year of our Lord 1843, the aforesaid Jules Lejeune came before our 10
said Lady the Queen, in Her Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

Enrolled the Twenty-eighth day of January, in the year of our Lord 15
One thousand eight hundred and forty-three.

LONDON:

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